



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/878,920 | 06/13/2001 | Metaxas Gamvrelis | 839-954 | 2278 |

30024 7590 04/26/2004

NIXON & VANDERHYE P.C./G.E.
1100 N. GLEBE RD.
SUITE 800
ARLINGTON, VA 22201

EXAMINER

WEST, JEFFREY R

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2857 | |

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/878,920

Applicant(s)

GAMVRELIS ET AL.

Examiner

Jeffrey R. West

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 7, 8, 13, 18, 19, and 23-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,577,961 to Hubbard et al. in view of U.S. Patent No. 5,550,460 to Bellin et al.

Hubbard discloses an energy meter having programmable functions including a first system for receiving input data from a plurality of field transformers each corresponding to a respective circuit phase (Figure 1 and column 5, lines 24-28), a digital signal processor system coupled to the first system, and a microprocessor system coupled to the digital signal processor system (column 5, lines 18-23 and Figure 1, "14" and "16"), wherein the first system in combination with the digital signal processor system and the microprocessor system performs metering (column 5, lines 39-46), power quality (column 8, lines 19-23), through normal harmonic analysis (column 13, lines 39-43 and table 3), digital fault recording (column 8, lines 4-18), and supervisory control and data acquisition functions (column 10, line 60 to column 11, line 7). Hubbard also teaches that the digital fault recording determines the occurrence of an overcurrent fault (column 8, lines 15-18).

As noted above, the invention of Hubbard teaches many of the features of the claimed invention and while the invention of Hubbard teaches performing metering functions on data input through a plurality of corresponding sensing transformers, as well as performing fault recording during an overcurrent condition, Hubbard does not specifically disclose a switching circuit coupled to each of a plurality of transformers adapted to switch to multiple positions depending on whether the current of the transformer is in a metering range or an overcurrent range, wherein one of the positions enables the components to perform metering and another position enables the system to perform the digital fault recording function.

Bellin teaches a group of switching circuits coupled to a multi-tap transformer adapted to switch multiple positions depending on whether the current flowing through a primary circuit of the transformer (column 2, lines 24-32) is in a metering range or a fault detecting range (column 3, lines 14-27), wherein one of the positions enables the components to perform metering and another position enables the system to perform the digital fault recording function (column 3, Table 1 and column 4, line 56 to column 5, line 10).

Although Bellin teaches a multi-tap transformer as opposed to a plurality of transformers forming an AC subsystem, it is considered to be inherent that a multi-tap transformer is actually an AC subsystem formed of a plurality of transformers including one untapped primary winding a plurality of tapped secondary windings (See for example, U.S. Patent Application Publication No. 2001/0048356 to Owen, Figures 1-3).

It would have been obvious to one having ordinary skill in the art to modify the invention of Hubbard to include a switching circuit coupled to each of a plurality of transformers adapted to switch to multiple positions depending on whether the current of the transformer is in a metering range or an overcurrent range, wherein one of the positions enables the components to perform metering and another position enables the system to perform the digital fault recording function, as taught by Bellin, because, as suggested by Bellin, the combination would have provided a means for automatically switching between a plurality of operations in order to perform the plurality of functions desired, such as would be applicable for switching between the functions of Hubbard, to increase efficiency and lessen the burden required of the user (column 1, lines 49-59).

3. Claims 3-5, 9, 10, 14, 15, 17, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubbard et al. in view of Bellin et al. and further in view of U.S. Patent No. 5,353,189 to Tomlinson.

As noted above, the invention of Hubbard and Bellin teaches all of the features of the claimed invention except for including a device between the field sensor and operational circuitry for common-mode or normal-mode transient surge protection.

Tomlinson teaches a surge protector for traffic monitoring/metering equipment comprising a surge protecting device between field sensors and their corresponding operational monitoring equipment (column 2, lines 19-21), wherein the surge protecting device provides both common and normal mode transient surge

protection (abstract) using metal oxide varistors and gas tube arrestors (column 2, lines 24-31).

It would have been obvious to one having ordinary skill in the art to modify the invention of Hubbard and Bellin to include a device between the field sensor and operational circuitry for common-mode or normal-mode transient surge protection, as taught by Tomlinson, because the combination would have provided adequate protection from high surges thereby eliminating equipment downtime and the need for repeated expenditures for maintenance, repair, and/or replacement of equipment (Column 2, lines 8-15).

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hubbard et al. in view of Bellin et al. and further in view of U.S. Patent No. 5,734,256 to Larsen et al.

As noted above, the invention of Hubbard and Bellin teaches all of the features of the claimed invention except for specifically including a diode mirror for providing crowbar protection against signals that are higher in absolute value than the supply voltage.

Larsen teaches an apparatus for protection of power-electronics in series compensating systems comprising a conventional metal oxide varistor and bypass breaker combination on the line side of a coupling transformer and a solid-state thyristor shoring crowbar switch, using a diode mirror, that provides crowbar

protection against signals that are higher in absolute value than the supply voltage (abstract and column 3, lines 2-7).

It would have been obvious to one having ordinary skill in the art to modify the invention of Hubbard and Bellin to specifically include a diode mirror for providing crowbar protection against signals that are higher in absolute value than the supply voltage, as taught by Larsen, because, as suggested by Larsen, the combination would have provided a method for preventing damage to the apparatus needing protection by controlling large current flows that can occur during fault conditions (column 1, lines 30-45 and column 2, line 67 to column 3, line 12).

5. Claims 11, 12, 16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hubbard et al. in view of Bellin et al. and Tomlinson and further in view of U.S. Patent No. 5,734,256 to Larsen et al.

As noted above, Hubbard in combination with Bellin and Tomlinson teaches all of the features of the claimed invention except for specifically including a diode mirror for providing crowbar protection against signals that are higher in absolute value than the supply voltage.

Larsen teaches an apparatus for protection of power-electronics in series compensating systems comprising a conventional metal oxide varistor and bypass breaker combination on the line side of a coupling transformer and a solid-state thyristor shoring crowbar switch, using a diode mirror, that provides crowbar

protection against signals that are higher in absolute value than the supply voltage (abstract and column 3, lines 2-7).

It would have been obvious to one having ordinary skill in the art to modify the invention of Hubbard, Bellin, and Tomlinson to specifically include a diode mirror for providing crowbar protection against signals that are higher in absolute value than the supply voltage, as taught by Larsen, because, as suggested by Larsen, the combination would have provided a method for preventing damage to the apparatus needing protection by controlling large current flows that can occur during fault conditions (column 1, lines 30-45 and column 2, line 67 to column 3, line 12).

Response to Arguments

6. Applicant's arguments with respect to claims 2-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication No. 2001/0048356 to Owen teaches a method and apparatus for providing selectable output voltage comprising a multi-tap transformer.

U.S. Patent No. 5,136,460 to Misencik et al. teaches an electrical system surge protector.

U.S. Patent No. 5,905,282 to Sato et al. teaches a multi-terminal surge protection device.

U.S. Patent No. 6,535,369 to Redding et al. Redding teaches an adaptive surge suppressor and high voltage transient protector (column 2, lines 41-50) including a sensor (column 5, lines 50-51), such as a current transformer (column 6, lines 15-17), and a plurality of switching circuits, each circuit coupled to a respective sensing transformers (i.e. an AC subsystem) (Figure 3) and further adapted to switch to multiple positions depending on whether the current flowing through a primary circuit of a respective transformer is in a normal range or an overcurrent range (column 5, line 51 to column 6, line 2). Redding also teaches including in the circuitry a suppressor element (column 5, line 53), such as a metal oxide varistor (column 4, line 52).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not


mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. West whose telephone number is (703)308-1309. The examiner can normally be reached on Monday through Friday, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (703)308-1677. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

jrjw
April 7, 2004


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800